

**EMERGING ISSUES IN SUSTAINABLE INDUSTRIAL DESIGN  
PRACTICE: IMPLICATIONS FOR DESIGNERS,  
MANUFACTURERS AND EDUCATORS**

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**CERTIFICATE OF AUTHORSHIP / ORIGINALITY**

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Candidate

A handwritten signature in blue ink, appearing to read "J. A. Derrion", is written over a horizontal line.

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## ABSTRACT

Industrial designers have been addressing issues of sustainability for many years with varying levels of intensity and mixed results. Since the 1970s, practitioners and educators in the field of product design have demonstrated an appreciation of issues related to the life cycles of products, the conservation of energy and natural resources, and the recycling of materials, and this awareness has been reflected in approaches to professional practice and in the academic curricula for industrial design students. With the advent of the 21<sup>st</sup> century, a number of emerging sustainability issues, associated largely with the implications of global warming and increasing greenhouse gas emissions, have posed new challenges for governments, manufacturers, and industrial design practitioners and educators.

These issues include those identified from the available literature relate to Environmental Management Systems, Increases in Off-shore Manufacturing, Sustainable Procurement, Developments in E-commerce, 'Green' Marketing,

Developments in waste management and recycling, Challenges for Environmental Legislators, After-sales Product Support, Developments in Ecodesign Tools, The Opportunities and Challenges of Rapid Prototyping, Emerging Sustainability Issues for Educators. For industrial designers, the challenges arising from the emerging issues relate not only to their desire to be ethical, but also to their need to remain competitive.

The focus of this thesis is upon the sustainability issues that have emerged in the early years of the 21<sup>st</sup> century. It looks first at the foundations of a sustainability consciousness and some traditional attitudes and approaches to sustainability that have been adopted by industrial design stakeholders since the 1970s. It draws upon the work of James (2001) and others to develop a theoretical framework on sustainability issues that are emerging in the early 21<sup>st</sup> century. This framework is then used to underpin an investigation conducted among industrial designers and

manufacturers on sustainability issues that have emerged since approximately 2000, and their implications for the sector.

Following identification and analysis of the emerging issues, a number of strategies are proposed for industrial design stakeholders to meet the challenges posed by the emerging sustainability issues. These include strategies for practitioners and manufacturers to promote sustainability while remaining competitive, desirable changes to the curriculum of industrial design courses, and the revision and updating of out-dated environmental legislation.